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4 RESEARCH DRIVE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>09 July 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-40</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-40</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claims 1-40 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1.   Claims 1, 2, 4, 6, 7, 9, 10, 14, 15, 17, 19, 20, 22, 23, 27, 28, 30, 36 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Gaal (US Pub No. 2004/0203475 A1).

Regarding **claim 1**, Gaal teaches a method to determine a channel quality metric in a wireless communication system (see Gaal, para. [0005]), comprising:

making a measurement from a forward channel to obtain a measurement result value (see Gaal, para. [0023], lines 11-17, C/I ratio of forward pilot signal), quantizing the measurement result value in accordance with an N level quantization to obtain a code (see Gaal, para. [0027], table 1), and reporting the code on a reverse channel (see Gaal, para. [0023], lines 1-5 and para. [0027], lines 1-3);

converting the reported code to a number (see Gaal, para. [0028], table 2,

converting mapped full C/I ratio bits into quantized full C/I ratio values);

comparing the number to a threshold (see Gaal, para. [0043], lines 8-12,

quantized full C/I ratio is correlated with code word to produce a probability value); and

if the comparison indicates that the number may not accurately reflect the

measurement result value (see Gaal, para. [0043], lines 7-15, a low probability values

indicates the assigned C/I ratio value may not represent the actual C/I ratio value of the

forward link), adjusting the number using an adjustment factor (see Gaal, para. [0029],

lines 1-3 and para. [0047], lines 4-9, when reliability of the full C/I is too low, the

estimated C/I value is adjusted using the differential value).

Regarding **claim 2**, Gaal also teaches a method as in claim 1, where the

adjustment factor is a constant (see Gaal, para. [0029], lines 10-12, 0.5 dB).

Regarding **claim 4**, Gaal also teaches a method as in claim 1, where the wireless

communications system comprises a base station (see Gaal, fig. 1, BS 102) and a

mobile station (see Gaal, fig. 1, MS 104), where the adjustment factor has a value that

is determined by the mobile station and reported to the base station (see Gaal, fig. 2;

differential value 208; para. [0025], lines15-16; fig. 3 and para. [0032]).

Regarding **claim 6**, Gaal also teaches a method as in claim 1, where N is equal

to 16 (see Gaal, para. [0027], table 1).

Regarding **claim 7**, Gaal also teaches a method as in claim 1, where the threshold is equal to -16.25 dB (see Gaal, para. [0035], table 3, first row of table 3 representing "0000" corresponding to –16.25 dB in table 2).

Regarding **claim 9**, Gaal also teaches a method as in claim 1, where making a measurement from the forward channel measures a pilot channel (see Gaal, para. [0034], lines 11-15).

Regarding **claim 10**, Gaal also teaches a method as in claim 9, where making a measurement determines a value for (Ec/Nt).sub.Pilot (see Gaal, para. [0034], lines 11-15).

Regarding **claim 14**, Gaal teaches a wireless communication system, comprising:

a mobile station (see Gaal, fig. 1, MS 104) comprising circuitry and a computer program controlling operation of the circuitry to make a measurement from a forward channel to obtain a measurement result value (see Gaal, para. [0023], lines 11-17, C/I ratio of forward pilot signal), to quantize the measurement result value in accordance with an N level quantization to obtain a code (see Gaal, para. [0027], table 1), and to report the code on a reverse channel (see Gaal, para. [0023], lines 1-5 and para. [0027], lines 1-3); and

a base station (see Gaal, fig. 1, BS 102) comprising circuitry and a computer

program controlling operation of the circuitry to convert the code to a number (see Gaal,

para. [0028], table 2, converting mapped full C/I ratio bits into quantized full C/I ratio

values), to compare the number to a threshold (see Gaal, para. [0043], lines 8-12,

quantized full C/I ratio is correlated with code word to produce a probability value) and,

if the comparison indicates that the number may not accurately reflect the measurement

result value (see Gaal, para. [0043], lines 7-15, a low probability values indicates the

assigned C/I ratio value may not represent the actual C/I ratio value of the forward link),

to adjust the number using an adjustment factor (see Gaal, para. [0029], lines 1-3 and

para. [0047], lines 4-9, when reliability of the full C/I is too low, the estimated C/I value is

adjusted using the differential value).

Regarding **claims 15, 17, 19, 20, 22 and 23**, the dependent claims are

interpreted and rejected for the same reasons as set forth above in claims 2, 4, 6, 7, 9

and 10, respectively.

Regarding **claim 27**, Gaal teaches a network infrastructure component of a

wireless communication system (see Gaal, fig. 1, BS 102) comprising circuitry and a

computer program controlling operation of the circuitry to receive a code from a mobile

station (see Gaal, para. [0023], lines 1-5 and para. [0027], lines 1-3), the code being

indicative of a quantized result (see Gaal, para. [0027], table 1) of a measurement result

value obtained from a forward channel (see Gaal, para. [0023], lines 11-17, C/I ratio of

forward pilot signal), to convert the code to a number (see Gaal, para. [0028], table 2,

converting mapped full C/I ratio bits into quantized full C/I ratio values), to compare the

number to a threshold (see Gaal, para. [0043], lines 8-12, quantized full C/I ratio is

correlated with code word to produce a probability value) and, if the comparison

indicates that the number may not accurately reflect the measurement result value (see

Gaal, para. [0043], lines 7-15, a low probability values indicates the assigned C/I ratio

value may not represent the actual C/I ratio value of the forward link), to adjust the

number using an adjustment factor (see Gaal, para. [0029], lines 1-3 and para. [0047],

lines 4-9, when reliability of the full C/I is too low, the estimated C/I value is adjusted

using the differential value).

Regarding **claims 28 and 30**, the dependent claims are interpreted and rejected

for the same reasons as set forth above in claims 2 and 4, respectively.

Regarding **claim 36**, Gaal teaches a wireless network apparatus (see Gaal, fig.

1, BS 102) comprising means for receiving a code from a mobile station (see Gaal,

para. [0023], lines 1-5 and para. [0027], lines 1-3), the code being indicative of a

quantized result (see Gaal, para. [0027], table 1)of a measurement result value

obtained from a forward channel (see Gaal, para. [0023], lines 11-17, C/I ratio of

forward pilot signal), and for converting the code to a number (see Gaal, para. [0028],

table 2, converting mapped full C/I ratio bits into quantized full C/I ratio values),

comparing the number to a threshold (see Gaal, para. [0043], lines 8-12, quantized full

C/I ratio is correlated with code word to produce a probability value) and, if the

comparison indicates that the number may not accurately reflect the measurement

result value (see Gaal, para. [0043], lines 7-15, a low probability values indicates the

assigned C/I ratio value may not represent the actual C/I ratio value of the forward link),

for adjusting the number using an adjustment factor (see Gaal, para. [0029], lines 1-3

and para. [0047], lines 4-9, when reliability of the full C/I is too low, the estimated C/I

value is adjusted using the differential value).

Regarding **claim 37**, the dependent claim is interpreted and rejected for the

same reasons as set forth above in claim 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 5, 8, 18, 21, 31, 32, 33, 38 and 39 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Gaal as applied to claims 4 and 17, respectively above, and

further in view of Kim et al. (US Pub No. 2003/0137955 A1; hereinafter "Kim")

Regarding **claim 5**, Gaal teaches a method as in claim 4, where the adjustment

factor is computed by the mobile station by (see Gaal, fig. 2; differential value 208; para.

[0025], lines15-16; fig. 3 and para. [0032], +.5 or -.5 dB): during a period of time when

the obtained codes do not accurately reflect the actual measurement result values (see

Gaal, para. [0043], lines 7-15, a low probability values indicates the assigned C/I ratio

value may not represent the actual C/I ratio value of the forward link), determining a

difference between individual ones of actual measurement result values and a threshold

measurement result value (see Gaal, para. [0043], lines 7-16).

Gaal is silent to teaching that where the adjustment factor is computed by the

mobile station by:

averaging the difference values; and reporting the average of the difference

values as the adjustment factor to the base station. However, the claimed limitation is

well known in the art as evidenced by Kim.

In the same field of endeavor, Kim teaches a method where the adjustment

factor is computed by the mobile station by:

averaging the difference values (see Kim, fig. 4, component 480; para. [0040],

lines 8-12; recursive average); and reporting the average of the difference values as the

adjustment factor to the base station (see Kim, fig. 7, component 860; para. [0049],

lines 3-4).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention was made to combine the teaching of Gaal with the teaching of

Kim in order to estimate a forward channel quality without a reduction in efficiency of a

reverse link in the communication system (see Kim, para. [0009]).

Regarding **claim 8**, the combination of Gaal and Kim also teaches a method as

in claim 5, where the threshold measurement result value is equal to -15.5 dB (see

Gaal, para. [0027], "0000").

Regarding **claims 18 and 21**, the dependent claims are interpreted and rejected

for the same reasons as set forth above in claims 5 and 8, respectively.

Regarding **claim 31**, Gaal teaches a mobile station component of a wireless

communication system (see Gaal, fig. 1, MS104), comprising circuitry and a computer

program controlling operation of the circuitry

to make a measurement from a forward channel to obtain a measurement result

value (see Gaal, para. [0023], lines 11-17, C/I ratio of forward pilot signal),

to quantize the measurement result value in accordance with an N level

quantization to obtain a code (see Gaal, para. [0027], table 1),

to report the code on a reverse channel to a wireless communication system

infrastructure component (see Gaal, para. [0023], lines 1-5 and para. [0027], lines 1-3),

and

to determine a value of an adjustment factor for use by the infrastructure

component when processing the code (see Gaal, fig. 2; differential value 208; para.

[0025], lines15-16; fig. 3 and para. [0032], +.5 or -.5 dB) by being responsive to a period of time when the obtained codes do not accurately reflect actual measurement result values (see Gaal, para. [0043], lines 7-15, a low probability values indicates the assigned C/I ratio value may not represent the actual C/I ratio value of the forward link) to determine a difference between individual ones of actual measurement result values and a threshold measurement result value (see Gaal, para. [0043], lines 7-16).

Gaal is silent to teaching that comprising circuitry and a computer program controlling operation of the circuitry

to average the difference values and to report the average of the difference values as the adjustment factor to the infrastructure component. However, the claimed limitation is well known in the art as evidenced by Kim.

In the same field of endeavor, Kim teaches that comprising circuitry and a computer program controlling operation of the circuitry

to average the difference values (see Kim, fig. 4, component 480; para. [0040], lines 8-12; recursive average) and to report the average of the difference values as the adjustment factor to the infrastructure component (see Kim, fig. 7, component 860; para. [0049], lines 3-4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Gaal with the teaching of Kim in order to estimate a forward channel quality without a reduction in efficiency of a reverse link in the communication system (see Kim, para. [0009]).

Regarding **claim 32**, the combination of Gaal and Kim also teaches a mobile

station component as in claim 31, where N is equal to 16 and where the threshold

measurement result value is equal to -15.5 dB (see Gaal, para. [0027], table 1, "0000").

Regarding **claim 33**, the combination of Gaal and Kim also teaches a mobile

station component as in claim 31, where the measurement is made from a pilot channel

to determine a value for (Ec/Nt).sub.Pilot (see Gaal, para. [0034], lines 11-15).

Regarding **claim 38**, Gaal teaches a wireless network apparatus (see Gaal, fig.

1, MS 104) comprising

means for making a measurement from a forward channel to obtain a

measurement result value (see Gaal, para. [0023], lines 11-17, C/I ratio of forward pilot

signal),

means for quantizing the measurement result value in accordance with an N

level quantization to obtain a code (see Gaal, para. [0027], table 1),

means for reporting the code on a reverse channel to a wireless communication

system infrastructure component (see Gaal, para. [0023], lines 1-5 and para. [0027],

lines 1-3), and

means for determining a value of an adjustment factor for use by the

infrastructure component when processing the code (see Gaal, fig. 2; differential value

208; para. [0025], lines15-16; fig. 3 and para. [0032], +.5 or -.5 dB), said value

determining means being responsive to an occurrence of a period of time when the

obtained codes do not accurately reflect actual measurement result values (see Gaal, para. [0043], lines 7-15, a low probability values indicates the assigned C/I ratio value may not represent the actual C/I ratio value of the forward link) for determining a difference between individual ones of actual measurement result values and a threshold measurement result value (see Gaal, para. [0043], lines 7-16).

Gaal is silent to teaching that comprising

means for averaging the difference values and for reporting the average of the difference values as the adjustment factor to the infrastructure component. However, the claimed limitation is well known in the art as evidenced by Kim.

In the same field of endeavor, Kim teaches that comprising

means for averaging the difference values (see Kim, fig. 4, component 480; para. [0040], lines 8-12; recursive average) and for reporting the average of the difference values as the adjustment factor to the infrastructure component (see Kim, fig. 7, component 860; para. [0049], lines 3-4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Gaal with the teaching of Kim in order to estimate a forward channel quality without a reduction in efficiency of a reverse link in the communication system (see Kim, para. [0009]).

Regarding **claim 39**, the dependent claim is interpreted and rejected for the same reason as set forth above in claim 33.

3.   Claims 11, 13, 24 and 26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Gaal as applied to claims 4 and 17, respectively above, and further in

view of Holtzman (US Pub No. 2004/0057394 A1; hereinafter "Holtzman").

Regarding **claim 11**, Gaal teaches a method as in claim 4.

Gaal is silent to teaching that where reporting the value of the adjustment factor

to the base station occurs at intervals that are longer than intervals between the mobile

station making a full channel quality indicator (CQI) report to the base station. However,

the claimed limitation is well known in the art as evidenced by Holtzman.

In the same field of endeavor, Holtzman teaches a method where reporting the

value of the adjustment factor to the base station occurs at intervals that are longer than

intervals between the mobile station making a full channel quality indicator (CQI) report

to the base station (see Holtzman, para. [0043], lines 13-19).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention was made to combine the teaching of Gaal with the teaching of

Holtzman in order to verify the accuracy and reliability of the quality feedback

information (see Holtzman, para. [0005], lines 10-12).

Regarding **claim 13**, Gaal teaches a method as in claim 4.

Gaal is silent to teaching that where reporting the value of the adjustment factor

to the base station occurs at intervals that are specified to the mobile station in signaling

received from the base station. However, the claimed limitation is well known in the art as evidenced by Holtzman.

In the same field of endeavor, Holtzman teaches a method where reporting the value of the adjustment factor to the base station occurs at intervals that are specified to the mobile station in signaling received from the base station(see Holtzman, para. [0043], lines 13-19).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Arima and Gaal with the teaching of Holtzman in order to verify the accuracy and reliability of the quality feedback information (see Holtzman, para. [0005], lines 10-12).

Regarding **claims 24 and 26**, the dependent claims are interpreted and rejected for the same reasons as set forth above in claims 11 and 13, respectively.

6.   Claims 12, 25, 34, 35 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaal and Kim as applied to claims 5, 18, 31 and 38 above, and further in view of Holtzman.

Regarding **claim 12**, the combination of Gaal and Kim teaches a method as in claim 5.

The combination of Gaal and Kim is silent to teaching that where reporting the value of the adjustment factor to the base station occurs at intervals that are longer than

intervals between the mobile station making a full channel quality indicator (CQI) report

to the base station. However, the claimed limitation is well known in the art as

evidenced by Holtzman.

In the same field of endeavor, Holtzman teaches a method where reporting the

value of the adjustment factor to the base station occurs at intervals that are longer than

intervals between the mobile station making a full channel quality indicator (CQI) report

to the base station (see Holtzman, para. [0043], lines 13-19).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention was made to combine the teaching of Arima, Gaal and Kim with

the teaching of Holtzman in order to verify the accuracy and reliability of the quality

feedback information (see Holtzman, para. [0005], lines 10-12).

Regarding **claim 25**, the dependent claim is interpreted and rejected for the

same reason as set forth above in claim 12.

Regarding **claims 34 and 35,** the dependent claims are interpreted and rejected

for the same reasons as set forth above in claims 11 and 13, respectively.

Regarding **claim 40**, the combination of Gaal and Kim teaches a wireless

network apparatus as in claim 38.

The combination of Gaal and Kim is silent to teaching that where said value

determining means reports the value of the adjustment factor at intervals that are at

least one of: longer than intervals between making a full channel quality indicator (CQI)

report; and specified to the mobile station component in signaling received from a base

station. However, the claimed limitation is well known in the art as evidenced by

Holtzman.

In the same field of endeavor, Holtzman teaches a wireless network apparatus

where said value determining means reports the value of the adjustment factor at

intervals that are at least one of: longer than intervals between making a full channel

quality indicator (CQI) report; and specified to the mobile station component in signaling

received from a base station (see Holtzman, para. [0043], lines 13-19).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention was made to combine the teaching of Gaal and Kim with the

teaching of Holtzman in order to verify the accuracy and reliability of the quality

feedback information (see Holtzman, para. [0005], lines 10-12).

4.   Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Gaal and Kim as applied to claims 1 and 14 above, and further in view of Arima et al.

(US. Pub No. 2006/0165091 A1; hereinafter "Arima").

Regarding **claim 3**, Gaal teaches a method as in claim 1.

Gaal is silent to teaching that where the wireless communications system

comprises a base station and a mobile station, and where the adjustment factor has a

value that is a function of a distance between the base station and the mobile station.

However, the claimed limitation is well known in the art as evidenced by Arima.

In the same field of endeavor, Arima teaches that where the wireless

communications system comprises a base station and a mobile station (see Arima,

para. [0003], lines 7-11), and where the adjustment factor has a value that is a function

of a distance between the base station and the mobile station (see Arima, para. [0049];

because the packet discarding rate is a function of a distant between the MS and the

BS; therefore, the corrected offset value is a function of a distant between the MS and

the BS).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention was made to combine the teaching of Gaal with the teaching of

Arima in order to increase the reliability of information between the base station and

mobile station (see Arima, para. [0006]).

Regarding **claim 16**, the dependent claim is interpreted and rejected for the

same reason as set forth above in claim 3.

Response to Arguments

Applicant's arguments with respect to claims 1 and 31 have been considered but

are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Wen W. Huang whose telephone number is (571) 272-

7852. The examiner can normally be reached on 10am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matthew D. Anderson can be reached on (571) 272-4177. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

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wwh

MATTHEW ANDERSON
SUPERVISORY PATENT EXAMINER